

CLAIMS

- 1./ The solid carrier-based microbial inoculants advantageously applied for natural phosphorous supply of plant, biological control of soil born plant pathogens, biological degradation of organic contaminants, soil life and fertility improvement is *characterised by* that the solid carrier containing phosphorus, made of animal bone charcoal, and having grain size advantageously between 0,001 mm and 10 mm, pore size between 10 and 60,000 nanometer, macro porous structured, the specific area is between 1 and 500 m²/g, and the external and/or internal surface and/or internal pores are biologically active colonized with soil microorganisms.
- 2./ Method for manufacturing and application of solid carrier-based microbial inoculants is *characterised by* that the carrier is produced from animal bone by carbonisation process over 300 degrees Celsius core temperature, followed by cooling to below 50 degrees Celsius core temperature, then the microbial inoculants - produced by conventional liquid phase fermentation - are introduced on and in the phosphorous content solid carrier external and/or internal surfaces and/or internal pores, advantageously by solid state fermentation process resulting in microbiological colonization, then the water content of the microbial product is decreased to achieve long time storage for preserving the viability of the microorganisms; and before field introduction the microorganisms are activated by water and/or nutrient additives.
- 3./ According to claim 2. the method is *characterised by* that the microbial inoculants is pre-fermented in liquid culture medium.

- 4./ According to claims 2. or 3. the method is *characterised by* that the water content is decreased below 45 w/w % at less then 50 degrees Celsius core temperature for the sporulated microorganisms produced by solid state fermentation and colonized in the internal and/or external surface of the carrier.
- 5./ According to any of the claims 2. - 3. the method is *characterised by* that one or more microbial strains are selected and make the microorganism strains separately or together
- 6./ According to any of the claims 2. - 5. the method is *characterised by* that for successful microbial colonization the carrier is pre-impregnated with nutrient.